

### **REMARKS**

Claims 31 and 35-52 are currently pending in the present application, including independent claim 31. Independent claim 31 is directed to a substrate for reducing odor. The substrate is porous and comprises a nonwoven, woven, or paper web. The substrate contains *colloidal silica nanoparticles* configured to adsorb one or more odorous compounds. The silica nanoparticles have an average size of from about 1 to about 50 nanometers and a surface area of from about 50 to about 1000 square meters per gram. Further, the silica nanoparticles are relatively nonporous and thus have a pore volume of less than about 0.4 milliliters per gram. Without intending to be limited by theory, the present inventors believe that the solid nature, i.e., low pore volume, of the colloidal nanoparticles may enhance the uniformity and stability of the nanoparticles, without sacrificing its odor adsorption characteristics.

In the Office Action, previous dependent claim 34 (now incorporated into independent claim 31) was rejected under 35 U.S.C. § 102(b) as being anticipated by EP1188854 to Honda, et al. Honda, et al. is directed to a photocatalyst is a complex oxide containing titanium and silicon. Applicants respectfully submit, however, that Honda, et al. fails to disclose various aspects of independent claim 31. Claim 31, for instance, requires that the colloidal silica nanoparticles are configured to *adsorb* one or more malodorous compounds. Honda, et al. expressly distinguishes such particles from photocatalysts that are excited by ultraviolet light and oxidatively degrades organic materials. (p. 2, ¶ [0005] and p. 3, ¶ [0011]).

In any event, Honda, et al. fails to disclose other limitations of independent claim 31, such as the use of silica nanoparticles that are *relatively nonporous* and thus have a

*pore volume of less than about 0.4 milliliters per gram.* Despite the failure of Honda, et al. to disclose this limitation, the Office Action indicates that “pores increase the surface area, so two particles having the same surface area and same size should have nearly identical pore volumes.” While it is certainly true that the surface area of a particle can be increased by the presence of pores, it is not necessarily the case that the particles of Honda, et al. must possess the claimed pore volume. In fact, other factors (e.g., the shape of the particles, pore size, type of materials, etc.) may also affect surface area.

Thus, for at least the reasons set forth above, Applicants respectfully submits that independent claim 31 patentably defines over Honda, et al. Further, at least for the reasons indicated above relating to independent claim 31, the corresponding dependent claims also patentably define over the references cited. However, the patentability of the dependent claims certainly does not hinge on the patentability of the independent claim. In particular, it is believed that some or all of these claims may possess features that are independently patentable, regardless of the patentability of the independent claims. For example, dependent claim 48 requires that the silica nanoparticles are coated with alumina (see e.g., Appl. p. 6, ll. 8-9) and dependent claim 49 requires that the nanoparticles are formed primarily from silica (see e.g., Appl. p. 6, ll. 4-6). Neither of these features is disclosed in Honda, et al.

In addition to the rejection noted above, various claims were also provisionally rejected under the judicially created doctrine of obvious-type double patenting in view of pending U.S. Application Serial No. 10/686,938. To the extent necessary, Applicants agree to submit a terminal disclaimer at such time that the application is otherwise in condition for allowance.

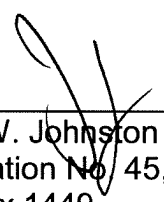
Finally, dependent claim 38 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite because the term "solids add-on level" is not defined in the specification or known to the artisan. Applicants respectfully submit, however, that the term "solids add-on level" is expressly defined at p. 12, ll. 6-9 and is determined by subtracting the weight of the untreated substrate from the weight of the treated substrate (after drying), dividing this calculated weight by the weight of the untreated substrate, and then multiplying by 100%.

Applicants respectfully submit that the present application is in complete condition for allowance and favorable action, therefore, is respectfully requested. Examiner Silverman is invited and encouraged to telephone the undersigned, however, should any issues remain after consideration of this Amendment.

Please charge any additional fees required by this Amendment to Deposit Account No. 04-1403.

Respectfully requested,

DORITY & MANNING, P.A.



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Date: 5/29/07